

Hardy Fern Foundation Quarterly



Winter 2006

THE HARDY FERN FOUNDATION

P.O. Box 166

Medina, WA 98039-0166

Web site: www.hardyferns.org

The Hardy Fern Foundation was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated from spores and tested in selected environments for their different degrees of hardiness and ornamental garden value.

The primary fern display and test garden is located at, and in conjunction with, The Rhododendron Species Botanical Garden at the Weyerhaeuser Corporate Headquarters, in Federal Way, Washington.

Satellite fern gardens are at the Stephen Austin Arboretum, Nacogdoches, Texas, Birmingham Botanical Gardens, Birmingham, Alabama, California State University at Sacramento, Sacramento, California, Coastal Maine Botanical Garden, Boothbay, Maine, Dallas Arboretum, Dallas, Texas, Denver Botanic Gardens, Denver, Colorado, Georgeson Botanical Garden, University of Alaska, Fairbanks, Alaska, Harry P. Leu Garden, Orlando, Florida, Inniswood Metro Gardens, Columbus, Ohio, Lewis Ginter Botanical Garden, Richmond, Virginia, New York Botanical Garden, Bronx, New York, and Strybing Arboretum, San Francisco, California.

The fern display gardens are at Bainbridge Island Library, Bainbridge Island, WA, Lakewold, Tacoma, Washington, Les Jardins de Metis, Quebec, Canada, Rotary Gardens, Janesville, WI, University of Northern Colorado, Greeley, Colorado, and Whitehall Historic Home and Garden, Louisville, KY.

Hardy Fern Foundation members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution.

Cover Design by Willanna Bradner

HARDY FERN FOUNDATION QUARTERLY

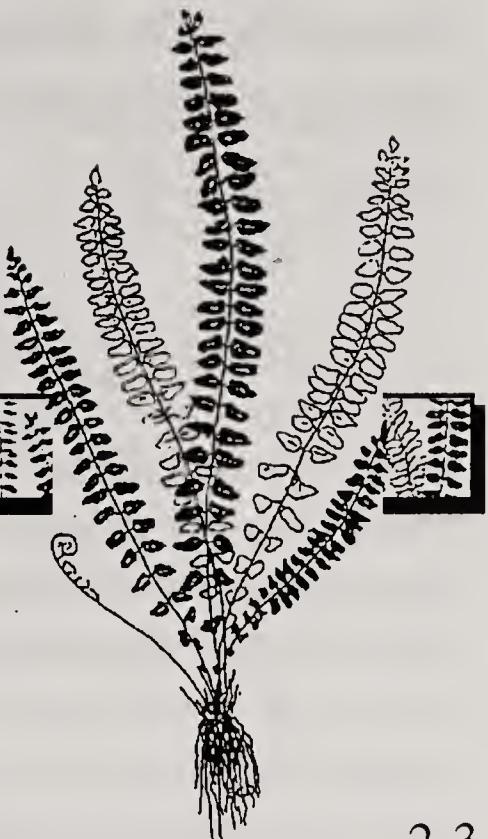
THE HARDY FERN FOUNDATION QUARTERLY

Volume 16

No. 1

Editor-Sue Olsen

ISSN 1542-5517



President's Message	2-3
John van den Meerendonk	
Discovering the Ferns of Deutschland	4-5
Richie Steffen	
<i>Woodwardia fimbriata</i> - Giant chain fern	6-7
James R. Horrocks	
Book Review	8-10
Martin Rickard	
My Summer Fling.	11-15
Tom Stuart	
Feast in The East - Part 2	16-23
Spore Exchange List 2005	24-26

The Spore Exchange Needs You!

Please send your spores to our Spore Exchange Director:

Katie Burki
501 S. 54th St.
Tacoma, WA 98408

President's Message

Winter 2005/2006

Greetings. I hope that all of you have had a wonderful Holiday Season and Best Wishes for this New Year.

This second week of January here in the Pacific Northwest finds us in the midst of our rainy season. Rain has been occurring daily on and off for the last three weeks with only a very occasional glimpse of the sun peeking through. Merriweather Lewis writes with dismay in his journal about the unrelenting rains that occurred during their winter camp on the northwest coast of Oregon in 1805. After a few weeks of poor cover under stretched out rotting elk hides, they built a more rain proof shelter of wood which became the site of Fort Clatsop, named after a local Native American tribe. Still, dampness and wet was a continual burden for those members of the expedition. Here, we can now sit in our cozy, warm, and waterproof homes, with light at our finger tips, reading with fascination their exploits in this region that occurred 200 years ago. I can walk in the rain with little discomfort in my breathable, waterproof gear in my yard or on the many nature trails that we are fortunate to have here on Bainbridge Island. Giant chain fern, *Woodwardia fimbriata*, though dormant, relishes the wet, along with other evergreen relatives, sword fern, *Polystichum munitum*, deer fern, *Blechnum spicant*, and especially licorice fern, *Polypodium glycyrrhiza*, festooned on the mossy trunks and branches of the big leaf maple, *Acer macrophyllum*.

The Northwest Flower and Garden Show will be held in the Convention Center in Seattle, WA from February 8th through the 12th. It is the 17th. year of this horticultural extravaganza and the 14th year that the Hardy Fern Foundation will have an educational booth there. It is always a fun time seeing landscape and plant displays, attending various lectures, and browsing through hundreds of booths in the educational area, the plants sales area and the landscape/garden supply area. Time to see new plants, gather new ideas, and meet old and new friends in the gardening world.

After February, we will be getting ready for the Fern Festival to be held on the first Friday and Saturday of June, at the Center for Urban Horticulture on the campus of the University of Washington. This is our big fundraising event of the year. We host the best and most extensive fern plant sale in the region, along with a lecture and displays on fern gardening and growing ferns from spore. This year we are happy and fortunate to have Robbin Moran as our featured speaker on Friday evening. Robbin is curator of ferns at the New York Botanical Garden and is the author of many papers and books about ferns, including the revised and expanded edition of the *Fern Grower's Manual*, and the wonderful and recently published *A Natural History of Ferns*.

Plans are moving forward on establishing a Fern Stumpery at the Rhododendron Species Botanical Garden in Federal Way, WA, where our main fern study garden and growing facilities are located. We have a wonderful, large site that is already in the first stage of being partially cleared and prepared for installation. More on this project later.

Expansion of the fern growing facilities are slated for later this fall, which is to build a new and larger greenhouse, along with modern technical amenities which will make the growing of various ferns more accommodating and practical.

As I close this message, I note that it has rained on the last 25 consecutive days. We have had sixteen inches of rain here in the Seattle area. The earth is saturated and landslides are occurring sporadically throughout the region. The rivers in all of Western Washington are swollen to capacity. The snow is falling deeply in the higher elevations of the Cascade and Olympic Mountains and glistens bright whitely when seen only in brief glimpses between the steady march of gray, moisture laden clouds and mists sweeping northeasterly on their passage through the low sky. Moisture is life and we will be more appreciative of its abundant presence in the snowpack, lakes and reservoirs when the dry months of summer are upon us. Happy fern gardening.

*Best regards,
John van den Meerendonk*



Attention All Fern Enthusiasts!

The Hardy Fern Foundation is in the process of updating our website. We would be very interested in knowing what you would like to see when you visit our site. Ideas could cover layout of the site to fern links of interest, as well as everything in between.

Any tips or information are welcome.

Please e-mail or send your ideas to:

Michelle Bundy

thebundys5@comcast.net

16038 46th AVE S
Tukwila, WA 98188

Discovering the Ferns of Deutschland

Richie Steffen

Federal Way, Washington

In late August and early September of 2004 I had the opportunity to travel to Germany with three other fern enthusiasts to get a preview of what is in store for the 2006 HFF/BPS tour. Here is a brief recount of this fun and fern laden trip.

I think few people would think of Germany as a destination for a fern garden tour. For some time I had heard a friend of mine, Sue Olsen, speak of the virtues of the German collections. On an earlier trip she was amazed by the diverse selections of these serious collectors and remained in contact with them long after the trip. Yearning to return and see these collections once again, she tirelessly arranged for a revisit to some of the best fern collections in the country. Fortunately for me, she asked if I would be interested in joining her and Alan Ogden and Martin Rickard, two other cohorts from the British Pteridological Society. Needless to say I jumped at the chance.

We arrived in Berlin after a long flight from Seattle and met Martin and Alan at the hotel. After a good night's sleep to help with jet lag we were ready to head off on a whirlwind fern tour. Before leaving Berlin we all agreed it would be a shame to not at least see the Brandenburg Gate. A short detour took us there and we arrived at the heart of Berlin for a quick gaze at this magnificent monument. The iconic placement of the gate as well as the still remaining scars of a wall that separated a nation left one with a feeling of awe at the history that has transpired over the centuries.

We quickly found our way out of the city and headed south toward Saxony. As the designated driver of the trip I found driving the autobahns in a German-made car the only way to travel in this country. I only wish I could remember what German car we drove. I know Alan (our on-board vehicle identifier) will find it disappointing that I did not write the make and model down in my notes.

Our travels led us through a great deal of eastern and northern Germany and through several historical cities and towns.

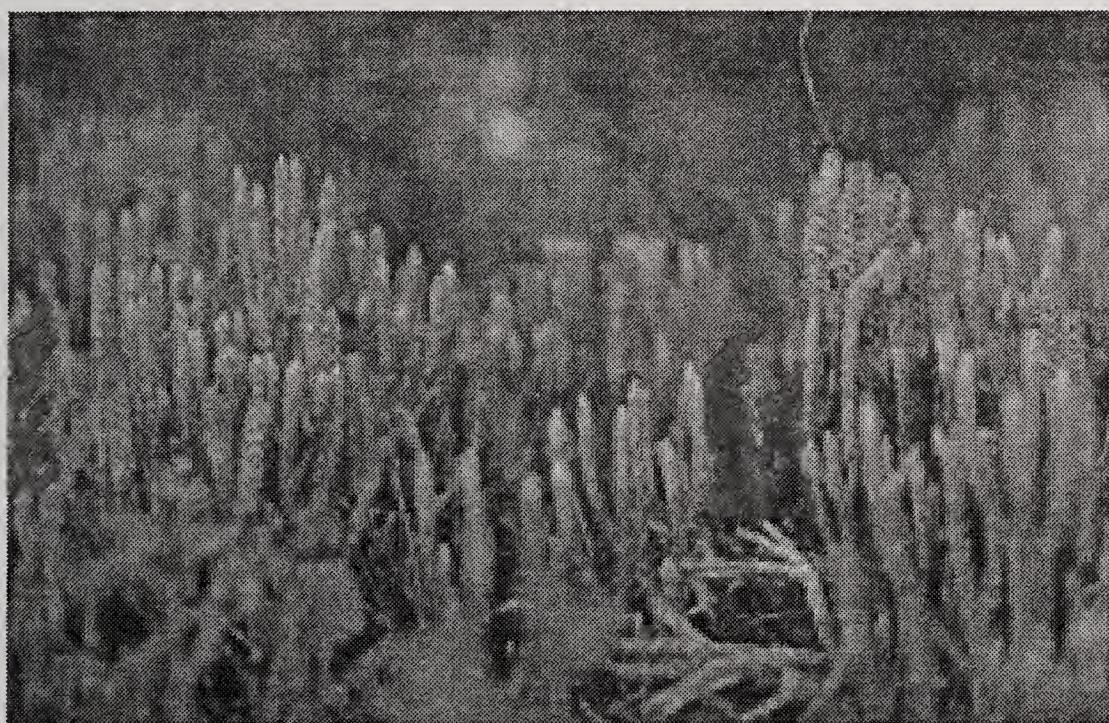
The first garden we toured was the outstanding collection of Christian and Margit Kohout, near the small town of Elstra just east of Dresden. The Kohouts have created a remarkable garden filled with plants from their travels around the world. The garden was arranged taxonomically with entire beds dedicated to *Athyrium*, *Dryopteris*, *Polystichum* and much more. One space in the garden was given to the *Polystichum* hybrids developed by the late Dr. Anne Sleep of Leeds University in England. These artificial hybrids often included a parent that produced bulbils allowing for easy propagation of these otherwise sterile plants. The garden was filled with rare treasures that would challenge the skills of any ardent pteridologist.

Mr. and Mrs. Kohout introduced us to Mr. Förster. His garden delighted us with another outstanding collection. Taxonomic arrangements included a wonderful collection of *Polystichum setiferum* cultivars. Martin identified one as the true form of *Polystichum setiferum* 'Plumosum.' He noted that this true form is almost extinct with only a handful surviving at present. Other areas were divided into geographic regions. There was a rock garden that featured a six foot deep well designed for growing ferns along the inside wall.

The afternoon was spent with this group at a local national park, Sächsische Schweiz. We drove to a fortress built on top of high stone bluffs that provided a commanding view of the Elbe River. Among the rock cliffs and stone bridges of the fortress were small tufts of *Asplenium trichomanes* and *A. ruta-muraria* filling the cracks. Far below were colonies of *Polypodium vulgare* clinging to ledges. On a cool wooded lower trail at the base of the bluffs we passed *Blechnum spicant*, *Matteuccia struthiopteris* and *Dryopteris filix-mas*. We were lead to an out of the way cliffside that was dotted with *Asplenium trichomanes* ssp. *pachyrachis*. This small fern grew vertically in the tiniest of cracks forming a tight starfish like pattern on the rock. A little further on we were shown a perennial gametophyte colony of *Trichomanes speciosum*. These colonies only occur in very specific conditions. They are found in dark crevices with constant moisture and cool temperatures. These colonies have the appearance of fine emerald green velvet that has been tightly affixed over the rock walls.

We spent a restful night at a hotel near the city of Chemnitz, described in the tour book as a city full of “socialist realism” architecture. Fortunately, the hotel was sited with a view of more picturesque architecture, an elegant castle surrounded by a moat. Stefan Jessen’s garden was the first stop in the morning. It is tucked in a residential community and is an alpine enthusiast’s dream. The entire property from front to back is a series of rock gardens. Much of it is arranged geographically by various countries or continents. All the stone had been hauled in and placed, representing a monumental effort. Everywhere you looked, each crack and crevice was filled with a different alpine plant. There were several nice specimens of *Polystichum lonchitis*, a rare crested selection of *Polystichum aculeatum*, and graceful forms of *Woodsia*. Throughout the garden we came across many forms and natural hybrids of small alpine aspleniums. Some areas were specially developed for lime loving ferns and serpentine rock and soil were brought in to grow unusual plants requiring these near toxic soil types.

Our next stop was at the Hartz Mountains and the charming old city of Wernigerode, a beautiful area long known as the home of witchcraft. We set out to the mountains and soon found ourselves enchanted by the hunt for *Diphasiastrum*, a low club moss that occurs in open alpine meadows. Martin had been given some maps for areas containing a few different species and hybrid swarms. I could not think of a more humorous sight than four ardent



Diphasiastrum alpinum. Photo by Richie Steffen.

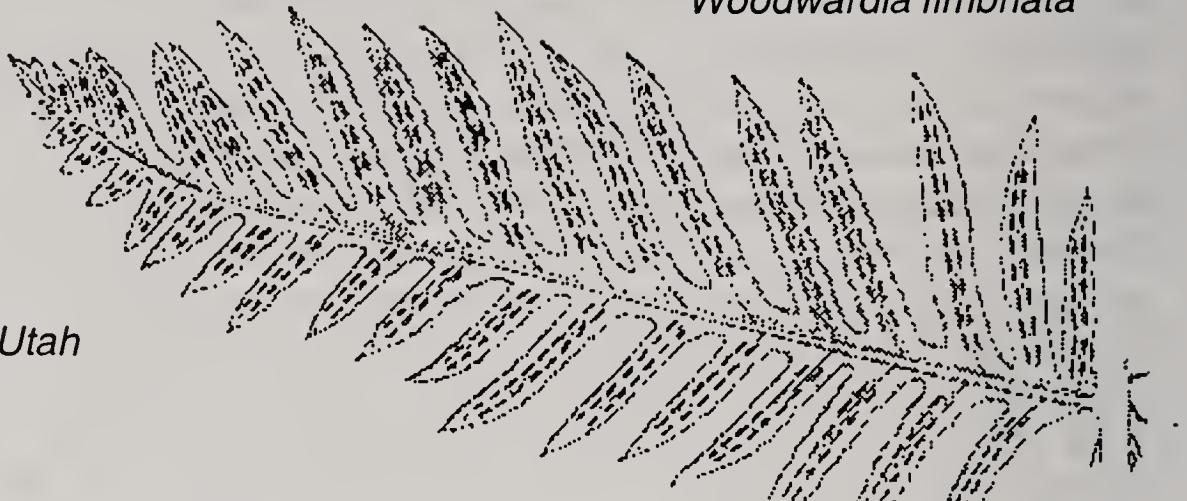
continued on page 27

Woodwardia fimbriata

Giant Chain Fern

James R.
Horrocks
Salt Lake City, Utah

Woodwardia fimbriata



Included in the family Blechnaceae, *Woodwardia* is named after Thomas J. Woodward, a late 18th and early 19th century English botanist who had a primary interest in studying algae. The species name *fimbriata* means “fringed” or “cut in shreds”, possibly alluding to its appearance from a distance. The name chain fern refers to the arrangement of sori which are visible on the upper surface of the pinnules. In older fern books it is listed as *W. chamissoi* and was called great chain fern by some early authors.

This is a very large evergreen fern, reaching 10 feet high in the wild, although 5 or 6 feet is more common. There are some 12 species in the genus *Woodwardia* and *W. fimbriata* bears a close resemblance to several of them, particularly *W. radicans*, *W. unigem mata*, and *W. spinulosa*. *W. fimbriata*, unlike the first two mentioned, bears no proliferous buds on its fronds. *W. spinulosa* has no buds either, but it differs from *W. fimbriata* in the triangular outline of its fronds, and in having the basal pinnae very nearly as large as the upper ones. *W. fimbriata* has elliptic-lanceolate fronds. David Jones mentions the “strong superficial resemblance” to *Todea barbara*, which can reach 5 feet in height, but the difference in the pattern of the sori easily distinguishes them from each other.

W. fimbriata is native to the far western portion of North America, from southern British Columbia south to Baja California. It is disjunct in southeastern Arizona and north-eastern Nevada. Of interest, in the original 1939 volume of *Ferns of Utah* by Seville Flowers, it is mentioned as being “rare in Utah, entering in from the northwest in the Raft River Mountains”. As far as is known to this date, it has disappeared altogether from Utah. Specimens from northeastern Nevada may prove to be much hardier than those on the Pacific coast. A smaller variety is mentioned as occurring in Yosemite Valley, California. In the wild, it is found growing in moist woods, more often near streams and springs and on cool shaded hillsides.

Description: The short-creeping rhizome is thick, woody and ascending, clothed in large brown scales. The clustered stipes bear large pale reddish-brown scales at the base but above they are yellowish-brown, somewhat straw colored. The rachis is thick

and yellowish or brown. The enormous evergreen fronds are erect and spreading, glabrous underneath, elliptic-lanceolate in outline, and rather coarse. Usually the fronds attain a height of 5 or 6 feet but specimens 10 feet high have been reported. The fronds are 18 to as much as 24 inches wide and appear light green at first, becoming a darker green at maturity. The apex is quite small and pinnatifid. The pinnae are nearly sessile, strongly divided, pinnate-pinnatifid, somewhat shorter near the base of the frond, and oblong-lanceolate. The pinnules are oblong-lanceolate as well and inserted at a 45 degree angle. The margins are spinulose serrate, often slightly recurved, and when older or dry, become revolute, that is, rolled back. The sori are oblong to linear, arranged more or less end to end along the midvein in one or more rows. The indusia are hood-like, tightly covering the young sori and attached by the outer margin and opening toward the midvein. As mentioned earlier, the fronds produce no buds.

Culture: Rickard notes that this species has proven “difficult to propagate” which may explain why it is not often available. Mickel tells us that it is moderate in its ease of cultivation. If you are lucky enough to live where it will thrive, this magnificent fern can be a dramatic accent plant, producing a veritable fountain of huge arching fronds. It should be given plenty of room and where it finds conditions to its liking, it is a strong grower. It is certainly most attractive when displayed as a focal point. A cool shaded area with moist somewhat acidic soil is much appreciated but the giant chain fern usually never attains the proportions found in its natural habitat. The soil should be kept constantly moist but with good drainage. As with any tall fern, it should be protected from strong damaging winds. *W. fimbriata* is reliably hardy in Zone 8 and possibly down to Zone 7. The author attempted this species in Salt Lake City and it did in fact survive two winters, but then eventually died out during the next growing season. The “benches” here are considered Zone 6 but it may have been too hot here and the soil may have not been acidic enough. As has been mentioned, there may very well be some hardier strains, especially if they hail from northeastern Nevada.

References:

A Field Manual of the Ferns and Fern Allies of the United States and Canada (1985)
David B. Lellinger, Smithsonian Institute Press, Washington, D.C.

Ferns of Utah (original 1939 paper) Seville Flowers, University of Utah, Salt Lake City

Ferns To Know and Grow (1984) F. Gordon Foster, Timber Press, Portland

A Guide To Hardy Ferns (1984) Richard Rush, British Pteridological Society, London

Encyclopaedia of Ferns (1987) David L. Jones, Timber Press, Portland

Ferns For American Gardens (1994) John Mickel, Macmillan Publishing Co., New York

The Plantfinder's Guide to Garden Ferns (2000) Martin Rickard, Timber Press, Portland

Fern Grower's Manual (2001) Barbara Joe Hoshizaki and Robbin C. Moran (revised),
Timber Press, Portland

Book Review

Martin Rickard, Tenbury Wells, England

The Pteridophytes of Mexico by John T. Mickel and Alan R. Smith. Memoirs of the New York Botanical Garden Vol. 88. The New York Botanical Garden 2004. Pp (8),1054, 328 plates, 1004 species maps plus general map in end papers. ISBN 089327458-5. Price \$125 plus carriage, in USA \$6 + 5% of subtotal, outside USA \$7 plus 6% of subtotal. Available from The New York Botanical Garden Press, 200th Street and Kazimiroff Boulevard, Bronx, New York 10458-5126, USA.

Few fern books, if any, approach the size of this huge work. Over 1000 pages of concentrated detail cover 1008 species of ferns and fern allies. Mexico has one of the world's richest fern floras and despite being on the fringes of the tropics it is not without interest to fern growers in colder areas keen to try something a little different. Very wet forests, many at very high altitudes on the Atlantic slopes are true alpine forests. Mexico certainly has much to offer from giant tree ferns, numerous forest floor species, including many beautiful filmy ferns, to abundant epiphytes.

Almost every species is illustrated by beautifully executed line drawings of the key characters. Very often there are three or four different diagrams for each species, giving a total number of something like 3000 illustrations on 328 plates, all in one volume! The quality of the drawings is very high. Some, just under 40% of the total, might already be familiar as they are recycled from *Pteridophyte Ferns of Oaxaca* by Mickel and Beitel (1988), but this is no bad thing. It is great to have all the illustrations together in one source. The bulk of the plates were drawn by Haruto Fukuda but one or two other artists have been brought in for certain species. Similarly, virtually every species has a distribution map, with a single dot to record presence or absence in each of the Mexican States and Territories. Forty new taxa are described and ten new combinations are published here for the first time. From the foregoing it is plain this is mammoth work. It is difficult to do justice to it in a short review.

For ease of reference the authors have decided to arrange the genera, and the species within the genera alphabetically. Overall this works well but beware of related genera being widely scattered, eg. *Alsophila*, *Cyathea*, *Sphaeropteris* etc., or the various cheilantheid ferns now that *Cheilanthes* has been split into several relatively new genera, eg. *Agyrochosma*, *Hemionanthes* as well as *Cheilanthes* itself. Also with *Selaginella* being under 'S' and *Lycopodium* under 'L', they are well separated - if, of course, they are ferns at all!

For the record, in more detail, there is a general synopsis for each genus with a relevant list of references. A full dichotomous key to the genus in Mexico is then followed by all the species alphabetically. Location of type and full synonymy leads into a full descrip-

tion; worldwide distribution (Mexican distribution is covered by the individual maps); a list of specimens examined; and an outline of any other points of interest known to the authors.

I am no taxonomist, therefore my observations on the content of the book will have a distinctly horticultural flavour. Mexico is mainly a tropical, subtropical or desert country so, perhaps surprisingly, I have grown a few of the native higher altitude species in my garden in Herefordshire, England. These collections were almost exclusively thanks to the generosity of Christopher Fraser-Jenkins about 20 years ago. I know his success at finding some of the treasures he collected were down to information kindly given to him by the senior author, John Mickel. I admit I used to cosset the Mexican taxa but they did do quite well for many years until the time I moved house, so there is certainly potential in colder regions.

Successes included *Polystichum speciosissimum* (*Plecosorus* when I grew it!), a beautiful species reminiscent of the Chilean *P. multilobum* to me. Sadly, however, it always stayed small. *Phanerophlebia pumila* was huge with me which now makes me suspect it was *P. macrosora*. I should have guessed when John Mickel remarked about how large my plant was when I proudly showed it to him in 1991! *Adiantum poiretii* did well for years on a rocky limestone slope. Several *Dryopteris* species also did well. Not unexpectedly these included *D. wallichiana* plus the less well known, *D. pseudofilix-mas* and *D. muenchii*. *Lophosoria quadripinnata* of Mexican origin did not persist for many years but I only had very young plants and winters in the late 80's and 90's were quite cold here. More recently a larger plant of Chilean origin came through the winter completely unscathed. A colder winter is promised this year....! My most treasured Mexican taxon was a young plant of *Cyathea princeps* (here named as *Sphaeropteris horrida*) which grew to have about 6 inches of trunk. I planted it out and it survived one winter but died during the second winter which was less severe. I believe it rotted through the English damp. *Cystopteris diaphana* did well with me, but the beautiful little filmy *Cystopteris*, *C. membranifolia*, did not thrive. I could not give it the high humidity it needed. One other success to mention was *Woodwardia spinulosa*. A little straw over the crown in winter was all it seemed to need.

Obviously my horticultural experiences only scratched the surface of a pteridophyte flora running to over 1000 species. It just makes me wonder how many other treasures exist there but remain to be tested in colder climates. Certainly many other species would be hardy in Northern Europe and both seaboards of the US. Many I have not tried but the 11 species of *Woodsia* must all surely be hardy. One, *W. cystopteroides* is new to science. It is well illustrated here, looking very like *Cystopteris fragilis*! Many of the numerous species of *Cheilanthes* (64!) are hardy in a cold frame and one or two hardy out of doors given good drainage, eg. *C. tomentosa* and *C. alabamensis*.

continued on page 10

Book Review *continued from page 9*

Of the many polypodies two are well established as hardy here in the UK, *P. hesperium* and *P. californicum*. Another, *P. polypodioides* is however, more difficult. Collections from within the US have failed for me and I know one fern grower with it growing naturally in his US garden cannot keep it happy if he transplants it!

Aspleniums have limited potential horticulturally. *Asplenium scolopendrium* var. *americanum* does well, as do our own native *A. septentrionale* and *A. trichomanes*, but several other species could be worth trying if spore ever becomes available.

One of the many beauties of this book is that the altitude range of every species is given. While this is not a definitive guide to hardiness it is a strong indicator. By combining altitude with appearance a long "want" list could be extracted from this work. Many species are high altitude and they are all pteridophytes so they must be attractive!

If you are lucky enough to venture into the field in Mexico this book will be indispensable, although it is so bulky I would leave it at the hotel and take the specimens to it. Also if you are the fortunate recipient of Mexican fern material, as I was all those years ago, this book would again be well nigh essential.

From the foregoing I hope it is clear I rate this book very highly. It will not only be of great value to the fern scientist but also to the fern grower. The inspiration within these

pages seems limitless – how I wish I could have gone on one of John Mickel's fern tours in Mexico! (See *Oaxaca Journal* by Oliver Sacks, 2002). Both authors are to be congratulated for producing such a magnificent volume.

THE HARDY FERN FOUNDATION
QUARTERLY



The Hardy Fern Foundation Quarterly is published quarterly by The Hardy Fern Foundation, P.O. Box 166 Medina, WA 98039-0166.

Articles, photos, fern and gardening questions, letters to the editor, and other contributions are welcomed!

Please send your submissions to:
Sue Olsen
2003 128th Ave SE,
Bellevue, WA, 98005

Newsletter:

Editor: Sue Olsen
Assistants: Michelle Bundy
Jo Laskowski
Graphics: Willanna Bradner (cover design)
Karie Hess (inside design)

My Summer Fling

Tom Stuart - Croton Falls, New York

I went back to school, at Eagle Hill in Steuben, Maine, and a five-day course, *Biology of Ferns and Lycophytes*, given by Robbin Moran, now a famous science writer following publication of *A Natural History of Ferns*, and no worse the wear for the notoriety.

Eagle Hill is northeast of Bar Harbor, out on a peninsula. In part due to this, its humidity supports a boreal spruce-pine community where lichens and mosses thrive; all of these contributions to the flora are markedly diminished on the mainland proper.

The most abundant fern is bracken accompanied by osmundas, the New York fern, a polypody, and several wood ferns. Not a rich fern community, but we supplemented this with field trips each afternoon to recommended sites.

Mornings were spent in a well-equipped classroom – dissecting and compound microscopes for each of us. A goodly part of Robbin's lectures were devoted to the evolutionary development of ferns, for example, understanding why ferns are more closely related to seed plants than to lycophytes. (Seed plants and ferns have a more recent common ancestor; lycophytes separate from the tree of life earlier.)

On our first hike *Pteridium aquilinum* and *Dennstaedtia punctilobula* popped up just outside the classroom. They are familiar ferns and members of the same family, the Dennstaedtiaceae. I know them well, but I did not know one family characteristic, the epipetiolar buds. These buds, low on the stipe, develop into new rhizomes. By no means omni-present, when found they do typify the family more assuredly than the oft-cited long-creeping rhizomes, hairs as indument, and marginal-to-submarginal sori. None of these are inevitable; pteridology is crammed with caveats, and caviar for the mind.

When we returned that Monday afternoon, we placed *Dryopteris marginalis* under the microscope and watched the sporangia pop. This would be a fine high school science experiment – except that school is out of session in popping season.

Tuesday we had a visit from Joanne Sharpe, whom you may know for her *Annual Review of Pteridological Research*. This day she was wearing another hat, reporting on long term growth and fertility studies on ferns in Maine and in Puerto Rico. The Puerto Rican studies, among them one of rheophytic (river loving) *Thelypteris angustifolia* tracking growth, damage by flooding, maturation, and fertility over several years, are part of long-term studies at Luquillo Experimental Forest.

Joanne's Maine studies tracked fertility in *Dryopteris intermedia* and *Polystichum acrostichoides*. Do you assume a mature plant has fertile leaves? Not necessarily: she found about 15% of plants crossing over from fertile to sterile every year; some take more than a one-year break.

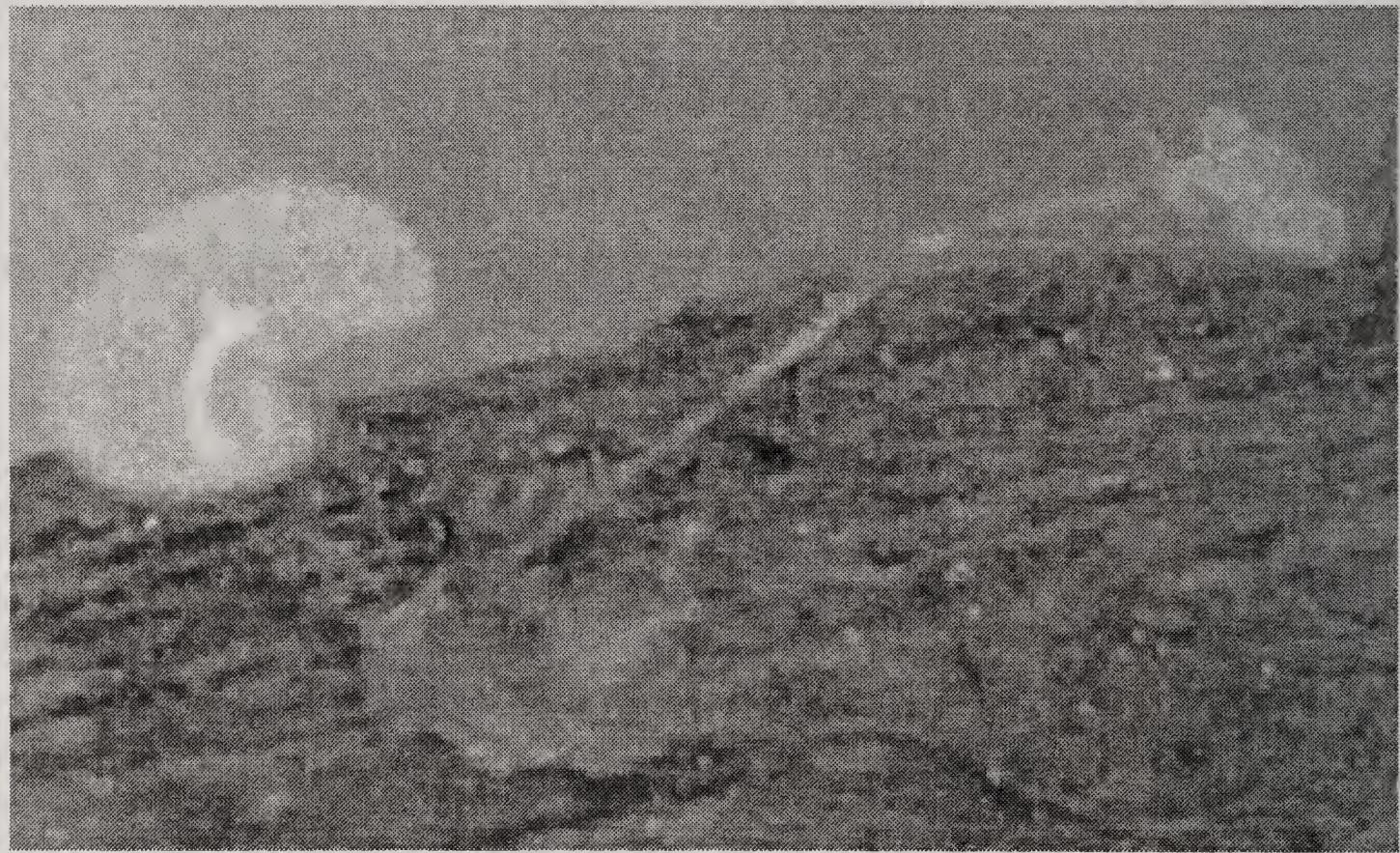
continued on page 12

My Summer Fling *continued from pg. 11*

The only fern book I've seen pay much attention to phenology is C.N. Page's *Ferns of Britain and Ireland*. His calendar of the cycle of annual events for every species coupled with the field notes' exploration of ecological associations constitutes a fine product from a lifetime of observation. Otherwise, the world awaits your investigation. When are you going to start?

Around my garden I've watched *Asplenium platyneuron* from sporelings to maturity to apparent senescence. Am I seeing cyclical vigor or are they short-lived? It's time for a study, and Joanne's procedures and experience will be my guide. One hand-out was full of tips on how to track changes in plants, even when you may only see them once a year. Write to me and I'll prime you with the class notes or write directly to Joanne, joannesharpe@juno.com.

The sharpest eyes in our group surely were those of Alejandra Vasco-Gutierrez, a Colombian doctoral student at the New York Botanical Garden. (She also told us a lot about Colombia.) Alejandra spotted gametophytes of *Osmunda regalis* in a bog at Tunk Lake, 20 miles or so from Eagle Hill. Most of them were growing on rotting wood. Finding the sexual phase of the life cycle is no easy task, but it helps a lot that they're accompanied by hundreds of sporelings.

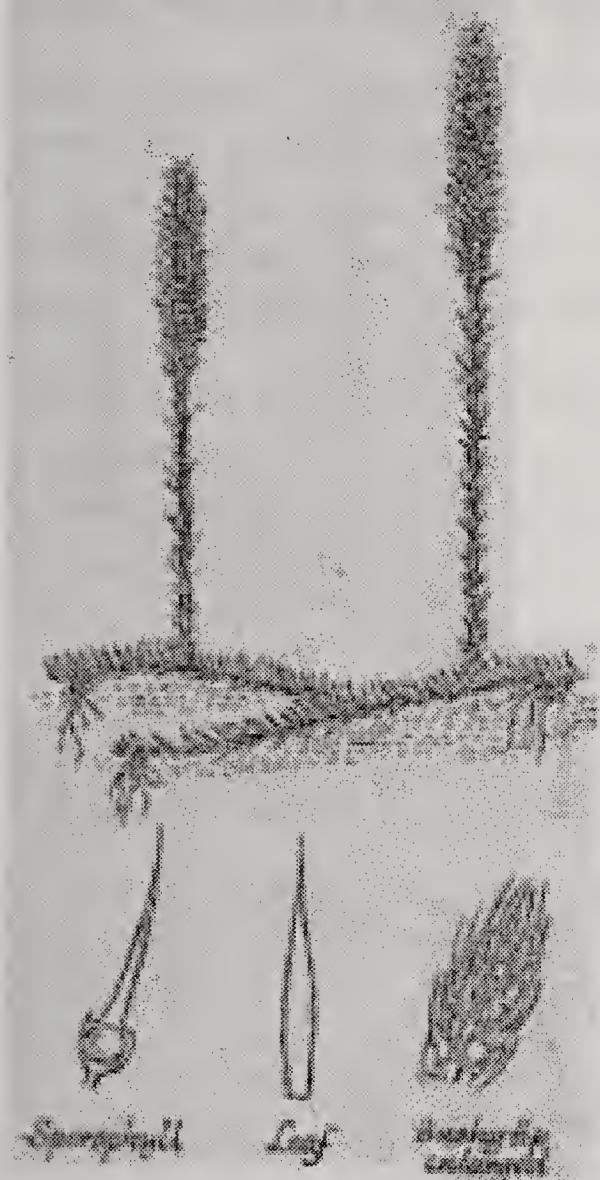


Osmunda regalis sporeling

At home I frequently find *Athyrium* sporelings and those of *Asplenium platyneuron* and *Polystichum acrostichoides*, but they are more often singular to few in number, not accompanied by examples of the other phase of the life cycle. Easier, but I was still impressed.

Isoëtes was the target of an extensive hunt, its presence having been reported in Tunk Lake. Like too many lycophytes, it is impossible to see until you've seen it. Anna Boyd was first to spot it. In this case it was *I. lacustris*, the lake quillwort. Later in the week it was at Spring River Lake. Shortly after our arrival there, the owner appeared and wanted to know what we were doing in his lake. "Looking for ferns." He retreated from the crazies. Spring River Lake also had another *Isoëtes* that did not key out, perhaps a hybrid. You can see photos of this, of the megaspores, a checklist of our Maine ferns, the *Isoëtes* hunters and the Spring River Lake interlopers on Alejandra's website,

<http://lycophytesferns2005.blogspot.com/>



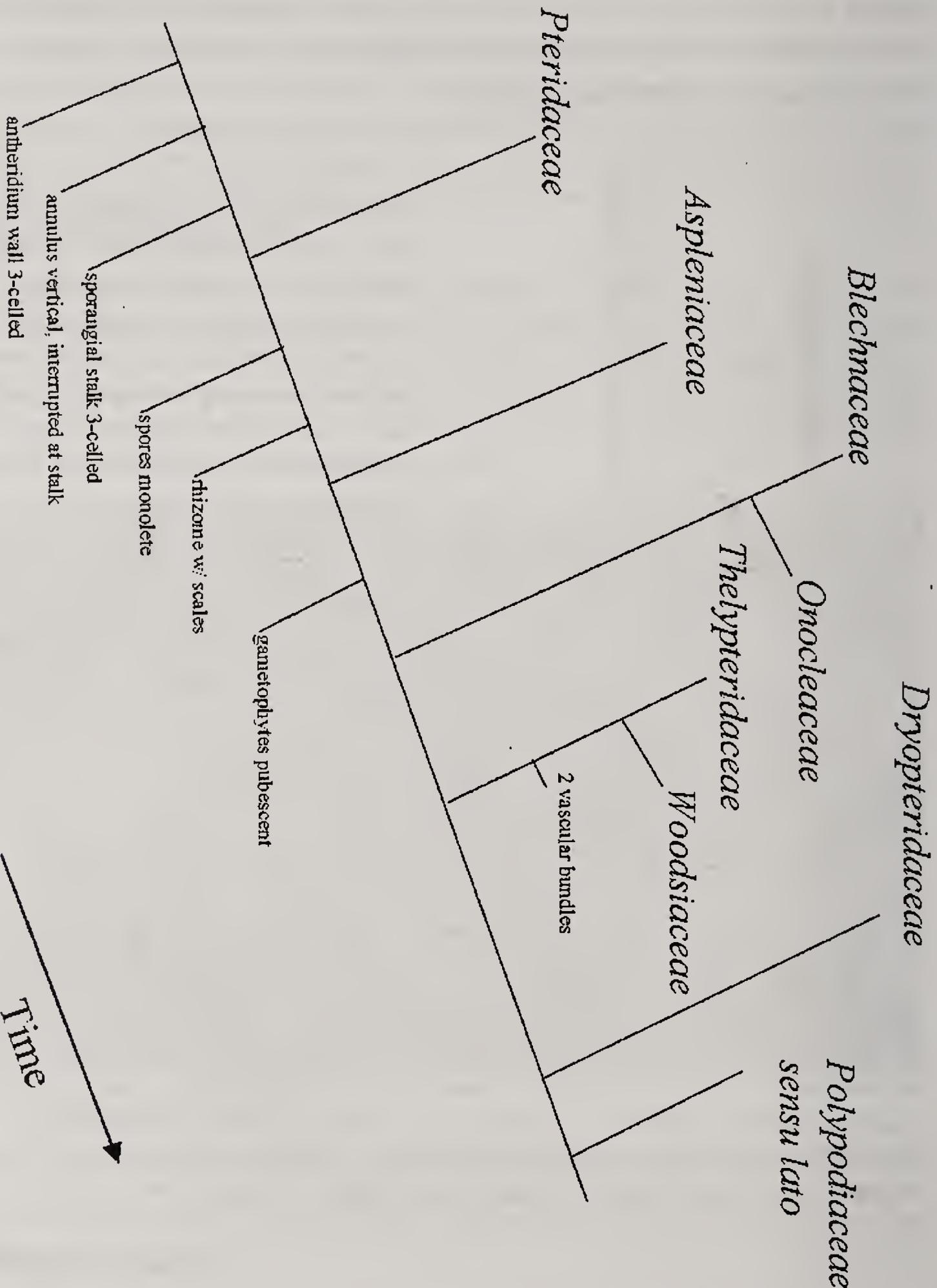
Where we found the Quillwort, we also found along the sandy shores the Bog Clubmoss, *Lycopodiella inundata*, my favorite among the lycophytes. Must I supply a reason? It's more cerebral than aesthetic: its capacity to morph into a pin-head over winter. It is native to the entire Northeast and to the Northwest from Washington to Alaska and only achieves a summer height of 5-7 cm. No one seems to show the winter incarnation, but here is a drawing from Edgar Paulton, drawn in the 70s for John Mickel's *How to Know the Ferns and Fern Allies*:

Dryopteris is the most common genus in the Maine woodlands, and *Dryopteris* hybrids are much easier to find once you have some idea of what to look for. They are still not easy. *D. × triploidea* is the cross of two spinulose wood ferns, *D. carthusiana* and *D. intermedia*. To begin with, they are quite similar, so there are few stand-out differentiators. One is its size, usually more robust than either parent. A second is the glands, absent in *carthusiana*, present in *intermedia*, sparse in the hybrid, so sparse some of us had trouble finding them. A clincher is aborted spores, but this requires a return to the microscope. Not easy, but satisfying when confirmed.

continued on page 14

My Summer Fling *continued from pg. 13*

Threaded through the week's discussion was the phylogeny of the ferns and lycophytes. I find the evolutionary history of plants a most fascinating subject. Here from my notes is Robbin's off-the-top-of-the-head description of family relationships on an evolutionary time-line:



I'm not going to dally here now, but please take away an appreciation that there is some common sense behind the concept of families, that they reflect evolutionary development. What is most surprising about the relationships? How much they have changed in recent years! Only 50 years ago the Thelypteridaceae were still submerged into the Wood Fern family, the Dryopteridaceae. The Flora of North America, thirteen years old, predates the molecular explosion and had *Onoclea* and *Woodsia* inside the Dryopteridaceae. Now look at this upheaval. When fully fleshed out, this diagram will be worth an article on its own. Exciting times. If you are interested in pursuing this, the Tree of Life web site contains a stimulating page by Kathleen Pryer and Alan Smith,

http://tolweb.org/tree?group=leptosporangiate_ferns

Other courses at Eagle Hill were on mosses, lichens, mushrooms, insects, fish, mammals, soils, ecology, climate change, and even that old bug-a-boo, flowering plants. This course, *Biology of Ferns and Lycophytes*, is being repeated in August. Details on the 2006 schedule should be posted by now at <http://www.eaglehill.us/> OR write to Eagle Hill, PO Box 9, Steuben, Maine 04680.

Also consider a shorter course, *Ferns and the Falsely Famed Fern Allies*, by Dr. Moran (with some overlap of material) in Bowdoin, Maine. More information at <http://www.vfthomas.com/deltahome.htm> OR write to Delta Institute, 219 Dead River Road, Bowdoin, Maine 04287. Back to school next summer?



The 2006 HFF Fern Festival

Will Feature a Lecture by

Dr. Robbin Moran

on

Helpful and Harmful Ferns

Friday Evening June 2

at the

Center for Urban Horticulture
in Seattle, Washington



Feast in the East

Part 2

As reported in the HFF fall quarterly, fourteen fern enthusiasts from North America, Britain and Germany participated in a highly successful, comprehensive eastern US fern tour organized by John and Margaret Scott of Pennsylvania. The first five days of the tour including natural sites, public and private gardens were described in Part 1, in the fall issue of the quarterly. Part 2 begins with an excursion into the wild in Pennsylvania.

Day 6

July 3

Martin Rickard with help from Alan Ogden

This was a special day. John had enlisted the help of a local naturalist, Jim Draude, to show us some treasures in the wild. In the morning we set off south eventually crossing the Susquehanna River.

Eventually we parked near the western bank of the Susquehanna and were led off into the woodland by Jim. Almost immediately we dropped into a small ravine to be shown a wonderful population of aspleniums; *Asplenium (Camptosorus) rhizophyllum*, *Asplenium montanum* and their hybrid *Asplenium x pinnatifidum*. The two parents are quite common but the hybrid less so. To the visiting Brits all three taxa were a great excitement. This grew when we were shown yet another hybrid down in a ravine. This was *A. x trudellii* the rare back cross hybrid between *A. x pinnatifidum* and *A. montanum*. The existence of this hybrid suggests that the *A. x pinnatifidum* here was the fertile tetraploid form. It was a real privilege to see this wonderful site.

Looking down deeper into the ravine one or two of us wondered if there might be some *Trichomanes* gametophytes. We had a quick look but could not see any. Our leader called to us to move along only a few yards up the small stream which formed the ravine. Here we passed several botrychiums. After perhaps 100 yards we came across a north facing cliff overhanging the shallow water. Torches were out investigating deep into the cliff's recesses and a small piece of fern gametophyte was discovered. It was not *Trichomanes* but an endemic species of *Vittaria*, *V. appalachiana* unknown in the sporophyte generation. Were it not for the fact that the British participants were mostly all aware of the widely distributed gametophytes of *Trichomanes speciosum* in the UK, this story would have been hard to believe!

After this excitement we moved a short distance to Pecque Creek, where, as we wandered along the side of the narrow road, we came across more *Asplenium rhizophyllum* on a boulder and masses of *Cystopteris*. Quite common was *Cystopteris bulbifera*, but curiously its fertile hybrid with *C. protrusa*, *C. tennesseensis*, was more common. The bulbils are less plentiful on the hybrid yet it seems to be a very successful species. In the field it is split from *C. bulbifera* by broader, more triangular and fresher green fronds. *C. protrusa* with its creeping rhizome was also present.

We stopped for a delicious, as always, box lunch in Pennsylvania's Lancaster County Central Park. After lunch Jim led us off across mown grass into a woodland with some precipitous, fairly sunny, cliffs. Here we were delighted to see some large plants of *Pellaea atropurpurea* in the rock crevices and on ledges, along with *Asplenium platyneuron* and *A. rhizophyllum*. Moving down the woodland to the road at the bottom, we saw very few ferns apart from *Polystichum acrostichoides*. By the roadside, above the Conestoga River we were surprised to see naturalised *Athyrium niponicum* 'Pictum' and some nice stands of *Adiantum pedatum*. We walked back along the road to eventually be met by the bus, I do not think many of us relished the idea of climbing up that bank again in the heat!

Day 7

July 4

Naud Burnett

This American writer has mixed emotions about our celebrating Independence Day, July 4th, for fear of offending our wonderful British fern companions.

Our first agenda was to visit scenic Berks County Park and Grings Mill at Topohopoken Creek. *Pellaea atropurpurea* and *Pellaea glabella* were growing abundantly in the mortar joints of a bridge spanning the creek. Important to the Brits were *Asplenium trichomanes* and the discovery by Christian Kohout of what may be an American station for *Asplenium trichomanes* ssp. *hastatum*. Pat Acock kept busy as usual climbing over boulder walls looking for yet another fern. We enjoyed a box lunch here as well as a walk through the surrounding forest.

On the way from here to John and Margaret Scott's garden the bus stopped so we could look at ferns and fern allies growing along a roadside nearby. Found in full sun were *Equisetum*, *Dryopteris marginalis*, *Thelypteris palustris*, *Thelypteris noveboracensis* and *Onoclea sensibilis*. Growing in the shade were *Cystopteris tenuis*, *Asplenium platyneuron*, *Woodsia obtusa*, *Dryopteris marginalis*, *Athyrium filix-femina* var. *angustum*, *Polystichum acrostichoides*, *Dryopteris x uliginosa* (*D. carthusiana* x *cristata*) and *Dennstaedtia punctilobula*.

We went to the Scott's Garden – the Rockland Botanical Garden - in Berks County where we were refreshed with tea and lemonade. (Remember the tax on tea was the starting argument with the British Government!)

John's and Margaret's front garden is screened from the front road and side areas by a multilayered planting of a collection of mature conifers and the rear garden was an open pasture when purchased, but has now become a natural native reforested area that gently slopes down to a spring fed creek. Some of John's collection of 272 fern species are organized in the rock garden beds in front of the conifers in partial shade and many more are grouped along the edges in the forest. A collection of *Polystichum acrostichoides* and a large collection of 29 named cultivars of *Athyrium niponicum* 'Pictum' were very interesting. It is clear that many cultivars do not look like photographic advertisements in sales literature in the trade. Of course, the bright leaf colors in the spring with the cool days and

continued on page 18

Feast in the East - Part 2 *continued from pg. 17*

nights might have been stronger when photographed with the colors bleaching out to nothing special by July 4th. The collection included: big form from K-Mart, silver form, dwarf form from Mrs. Du Pont, Wildwood Wonder, Pewter Lace, Silver Lace, Wildwood Tapestry, Ursula's Red, Wildwood Twist (it's flat), Ghost, Anna Bell's Dwarf, Branford Beauty, Branford Rambler, Red Beauty, Applecourt (crested), Soul Mate, Samurai Swords and Silver Falls.

Found in the rock garden were: *Woodsia ilvensis*, *Woodsia plummerae*, *Woodsia obtusa*, *Cheilanthes lanosa*, *Diplazium pycnocarpon*, eight *Athyrium* cultivars and eight forms of *Polystichum acrostichoides* with ruffled broad pinnae, crested tips or incised pinnae.

The woodland collection of trees and other plants were the result of 25 years of reforestation. Among the trees and native shrubs were: magnolia, tulip tree, poplar, spice bush, maple, gum, smilax and ilex. A natural walk in this back forest meandered through the luxuriant foliage of native herbaceous plants as well as abundant stands of poison ivy, which we tip toed around in order to avoid getting sap on our shoes. The following ferns were seen: *Dryopteris carthusiana*, *Onoclea sensibilis* (red stemmed form), several forms of *Osmunda regalis*, *Dryopteris celsa*, *Dryopteris x boottii*, *Dryopteris x triploidea*, *Dennstaedtia punctilobula*, *Athyrium filix-femina*, *Diplazium pycnocarpon*, numerous forms of *Polypodium*, *Botrychium* (five species), several species of *Lycopodium*, *Thelypteris noveboracensis*, *Thelypteris phegopteris*, *Selaginella apoda*, *Adiantum pedatum*, *Dryopteris goldiana*, *Dryopteris x leedsii*, *Dryopteris dilatata*, *Dryopteris intermedia* (dry soil), *Dryopteris filix-mas* 'Barnesii', *Dryopteris remota*, *Athyrium otophorum*, *Dryopteris filix-mas* (John Mickel's) and *Polystichum setiferum* 'Herrenhausen'.

The herbaceous perennial plants were too numerous to list but among the more important ones were: 25 species of trillium, lily of the valley, showy orchid, Indian pipe, sasparilla, arisaema, thalictrum and smilax.

We all appreciated a delicious dinner at the Scott's following their sharing their garden with us.

Day 8

July 5

Pat Acock

On Tuesday morning we set off on the short journey to Nescopeck State Park which was not sign posted. Once we finally found the park entrance we found the roads inside the park were very well sign posted. We were given a guide to ferns and their allies by the warden Diane who also accompanied us along the trail. The trail and accompanying woods were awash with ferns. There in the woodland edge climbing up the grasses and into the low shrubs was the Hartford Fern, *Lygodium palmatum*. For the next 400 yards or so it was everywhere and what a delight it was.

As the trail gave way to drier ground Martin Rickard was able to discern *Dryopteris x triploidea* amongst a group of *Dryopteris intermedia*.

After a superb salad style lunch at JRs, we were joined again by Otto Heck and John DeMarrais. We had a good walk up the Dunfield Creek Trail by the Delaware Water Gap. Here we were able to get our eye in again on the botrychiums. We saw *Botrychium virginianum*, *B. dissectum* ssp. *obliquum*, and just emerging *B. oneidense*. Martin was also able to restore a fern, *Phegopteris connectilis*, lost to a storm that had washed the trail clear earlier in the season.

Few wanted another walk so the hardy ones climbed up rapidly to 400 feet in about fifteen minutes to be rewarded by a wonderful view of the river and cliffs as well as *Woodsia ilvensis*, *W. obtusa*, *Asplenium platyneuron*, *A. trichomanes* ssp. *trichomanes* and *Pellaea atropurpurea* as well as seeing a beautiful fern in the wild and one often cultivated in Britain, *Cheilanthes lanosa*.

On the way down a polypod looked different from the one we had gotten to know, *Polypodium virginianum* and we were assured it was *Polypodium appalachianum*.

Day 9

Lygodium palmatum

July 7

Graham Ackers

The coach journey to our first site of the day involved clipping the NW corner of Connecticut and traveling just over the state border into Sheffield, Massachusetts. Bartholomew's Cobble is a trustee run nature reserve covering 329 acres, the main area of which consists of open fields dotted with red cedars (*Juniperus virginiana*) and forest. However, at the heart of the reserve adjacent to the well appointed and informative Visitor's Centre is an area of unusually fashioned rounded bedrock, being a rocky hill or knoll consisting of limestone, marble and quartzite. This is the "Cobble", the word not having its usual meaning of a "large pebble", but believed to have come from the German word *kobel* or *koble* meaning rocks. This basic substrate is a haven for pteridophytes, and the reserve's pteridophyte list for the whole site consists of 54 species.

As time was limited, we restricted ourselves mainly to the Cobble area, walking along the Ledges Interpretive Trail (for which a good guide booklet was available) or variations thereof. We were accompanied by Sarah, the reserve's Property Manager, with whom we swapped snippets of ferny information. Of the ferns listed, we managed to spot 31 taxa, many if not most of which we had seen at other sites, perhaps not however in such profusion. Highlights from the list were the significant patches of the Walking Fern (*Asplenium rhizophyllum*), *Dryopteris x triploidea* (*D. carthusiana* x *D. intermedia*), and the gametophytes of *Trichomanes intricatum* (cryptically residing in dark, damp rock crevices). Party members also spotted two taxa not on the reserve's list – the hybrid *Cystopteris x illinoensis* (*C. bulbifera* x *C. tenuis*), and *Equisetum pratense*. Historically the reserve had been well known for having Scott's Spleenwort *Asplenium ebenoides* (*A. platyneuron* x *A.*

continued on page 20

Feast in the East - Part 2 *continued from pg. 19*

rhizophyllum), but this was not found by us and sadly has not been seen by anyone in recent times.

Our first afternoon visit was to Innisfree Gardens in Millbrook, New York. Originally a large private garden, it became a foundation in 1960 when it was opened to the public. Based on Eastern design concepts, this landscape garden makes much use of stonework and contains interesting features such as waterfalls, fountains, grottos, and sculptures. The central feature is a large lake which was fringed with blooming Pickerelweed (*Pontederia cordata*), and close by were various boggy areas with a profusion of plants. I noted 18 pteridophyte taxa, although the garden is by no means "fern focused"! The highlight perhaps was a fine specimen of the cultivar *Athyrium filix-femina* 'Branford Beauty'.

On her death in 1967, Mary Flagler Cary left her Arboretum at Millbrook, New York in trust, and by 1983 the Institute of Ecosystems Studies was created on the site for research and educational purposes. Within this large (2000 acres) site is the small Fern Glen, which was our final site for the day. We were guided there by the lively Judith Sullivan, who told us that the Glen was designed by John Mickel, originally as a fern hardiness testing area. Subsequently however, its focus changed to being a garden devoted to the preservation and enjoyment of native ferns occurring naturally within a 50 mile radius of the Glen. As such, "exotics" are being eradicated. The area consists of paths and boardwalks through a variety of habitats including a pond, swamp, fen, cobble and forest. A bed close to the pond contains the greatest variety of ferns, shaded by netting as a result of a 1992 tornado obliterating the previous tree cover. We recorded 26 pteridophytes in all, perhaps most striking being the swamp loving *Osmunda cinnamomea* (fine large plants), *O. regalis* var. *spectabilis*, *Onoclea sensibilis*, *Matteuccia struthiopteris*, and *Athyrium filix-femina*.

Day 10

July 11

Martin Rickard

I had been looking forward to today's first visit for months. We were off to see John and Carol Mickel's garden at Briarcliff Manor about 20 miles north of New York City and about 1 mile from the Hudson River. I had been before a few years ago and I knew it was something special. If anything my only trepidation was that maybe the garden was not as good as I remembered. I need not have worried!

Every plant here is beautifully grown. John has an arrangement whereby suitable mulching material is delivered in bulk to about 5 yards from the nearest fern border. The rewards from taking trouble with the soil were obvious - obvious enough to make me jealous!

I would guess the garden covers about an acre. The main fern areas are on the shady slope where the land drops away behind the house into a natural valley. There is an ornamental pool at the bottom. This part of Briarcliff Manor is very much a leafy suburb with large gardens which unfortunately make it ideal country for deer which can damage some of the ferns. At the time of our visit damage was hard to spot.

Many ferns here are worthy of note: *Deparia conilii*, a small clump forming fern from Korea with erect sporing fronds and spreading sterile fronds, is a pretty little fern new to most of us this week. (We had seen it earlier in the garden of Dr. Lighty who introduced it to US horticulture.) *Dryopteris ludoviciana* has beautiful glossy green fronds. Curiously this species mimics *Polystichum acrostichoides* in having sporing pinnae reduced in size towards the tips of the fronds. (*But the soral pattern is quite different...Ed.*) Why do both species do this? It's odd that they both grow in the same geographic region. *Arachniodes miquelianana* (wouldn't *mickeliana* have been appropriate?) is one of those ferns I dismiss as ungrowable but with its large triangular fronds it is stunning in the garden here. *Dryopteris monticola* is another fascinating species. I have heard it said that it is simply an Asian form of *D. goldiana*, but seeing it here it is clearly different although the two species do look to be closely related. *Cyrtomium falcatum* var. *littorale* is new to me. It is a very nice compact form apparently more hardy than the normal species. *Diplazium squamigerum* is a triangular fronded fern related to the lady ferns, common enough in Japan etc. but very rarely met with in the west. *Blechnum niponicum* with its beautiful new fronds flushed red is magnificent here, and I mean **magnificent**. I have grown this in the UK but it has dwindled and died with me. *Dryopteris hondoensis* also from Japan with its rather more open fronds thrives.... but I could go on forever, there are so many unusual ferns here, many of which do not appear to grow in Britain. John is in US hardiness zone 6, much colder than anywhere in England so why the discrepancy? After much discussion travelling on the coach we came to the conclusion that we do not have enough summer heat to stimulate sufficient growth annually for the plants to survive the winter. Either that or the stop/start nature of our springs is lethal.

It was taking ages to do this garden any sort of justice, and unfortunately our time was tight, many of us were so beguiled by the garden that we almost missed out on the delicious refreshments laid out in the house by Carol, but we made it! I wonder how many of John's and Carol's bits and pieces decorated with ferns were noticed. Their collection scattered all around the house is mind blowing. It runs to mugs, plates, napkins, curtains, mats, pictures, jugs, vases, towels, tea towels etc. etc.

No one wanted to leave here, John and Carol had been such wonderful hosts but we all reluctantly climbed back on the bus to travel the short distance to Lyndhurst.

At Lyndhurst, still in New York state, we snatched another of Margaret's delicious boxed lunches before rushing off to the fern garden. This is by the side of the main entrance drive and consists of a series of raised beds each surrounded by largish stones. Within each bed the local fern growers had amassed an excellent collection. Highlights for me here were some of the fascinating *Dryopteris* hybrids, including *D. x boottii*. The latter is sometimes seen for sale in the UK but so far as I can see never correctly. We were shown around by Gray Williams.

After a shortish stay at Lyndhurst we set off on quite a long drive to the Leonard J. Buck garden in New Jersey. Here is housed half of the F. Gordon Foster fern collection (the other half is at the New York Botanical Garden). We were shown around armed with the list of ferns in the garden. Many were species native to the northeastern states, notably *Marsilea quadrifolia* in the pool (near a large black snake which quietly slithered off as we arrived!), *Thelypteris noveboracensis*, and *Woodwardia areolata*. Of particular inter-

continued on page 22

Feast in the East - Part 2 *continued from pg. 21*

est to me was a large stand of crested *Deparia acrostichoides*. I am hoping we can find out if this attractive fern is hardy in Britain.

Name changes and species splitting are not unique to Europe. Readers may be interested to know that '*Polypodium vulgare*' in the US has over the years been split into a handful of different species, none of them now called *P. vulgare*! Initially all polypodies in the east were assigned to *P. virginianum* but this too has been recently split into two with the new species called *P. appalachianum*. Our visit was quite soon on the heels of the change and each clump of polypody was discussed much as would happen in the UK. This all added to the fun and we ended up putting all the Buck Garden material we saw into *P. appalachianum*. The only *P. virginianum* I remember seeing on the whole trip was among the rocks on the climb up to see *Woodsia ilvensis* at the Delaware Water Gap.

Day 11

July 12

Sue Olsen

Our final day arrived all too quickly with Bowman's Hill Preserve and its Wherry Fern Trail in Pennsylvania our first stop of the morning. As per visits at previous sites, local specialists, Jack Schieber, John DeMarrais and Otto Heck had kindly scouted the Preserve to compile an inventory of the ferns on the property and prepare a checklist of the ferns in the collection for us.

The Preserve itself was established in 1934 with a long-term goal of presenting and preserving the wildflowers and ferns of Pennsylvania in their varied natural habitats on the property. The soils, rocks and exposures offer a representative sampling of those of the state as a whole and consequently offer an ideal terrain for the collection of some 800 of the state's 2000 native plants.

Dr. Edgar Wherry, teacher and author, was instrumental in establishing the Preserve and he and his students planted a trail of native ferns along the varied terrain of twenty acres of woodlands. A canopy of hemlock and understory of rhododendron are dominant woodlanders and part of eighty acres enclosed by the requisite deer fence.

Hildy Ellis, who is the Education Coordinator at the Preserve, greeted us in good cheer especially considering that we were also met by an incredible eastern U.S. downpour. She guided us along a wildflower walk down to the fern trail. Fortunately the ferns along the trail were by now basically familiar natives, Wherry's specialties. It was not long before everyone was quite ready to return to the comfortable and dry visitor's center and gift shop.

Meanwhile, while we were enduring rain as opposed to the up-till-now ever present heat and humidity, Rose Marie Schieber was preparing a luncheon feast for us all. She and Jack garden in Holland, Pennsylvania and what a pleasure it was to eat a gourmet lunch while sitting in their sunroom, surrounded by garden vistas, flocks of visitors to their bird feeders and best of all good friends.

The rain relented a bit and the well-fed faithful eagerly joined Jack for a tour of their collection. Even before leaving the house, we were impressed by a statuesque specimen of *Dryopteris x complexa* standing as a sentinel in the foreground of a primary bed. The tour introduced us to a collection of fellow *Dryopteris* cultivars, including an attractive *D. filix-mas* 'Parsley' and a robust *Dryopteris affinis* 'Revolvens'. We admired and photographed the native *Dryopteris* hybrids especially *Dryopteris x leedsii*. But there is much more than their *Dryopteris* collection and we were especially impressed by a magnificent planting of *Polystichum braunii*.

In addition to and amongst the robust *Dryopteris* collection, the Schieber's have a lusty little *Woodsia scopulina* var. *appalachiana*. This attractive and rare dwarf was a "new to us" find. Ah, but then came the questions about scales, hairs and the botanical nuances of identification. Since then, Jack has done the research and has confirmed that the ID is correct. It was a treat to be introduced to this unusual mound of small, soft and cold hardy foliage.

I'll confess that this was not my first visit here and I continue to be impressed and delighted with a vigorous stand of *Adiantum capillus-veneris* that shares, along with annuals, the intimate garden close to the house. Mind you this is USDA Zone 6. Jack confesses that he has a reserve plant, brought indoors in the winter, in case of an emergency. So far it has not been necessary.

We left late for the University of Pennsylvania's Morris Arboretum, just outside of Philadelphia. Here Diane Smith, a fern enthusiast and garden volunteer welcomed us. Eager for an opportunity to do some serious photo work with tropical ferns, I slipped away, camera in hand, for the fernery, but Diane introduced our tour members to some of the highlights of the garden. One of the features is the garden railway, Fairy Tale Rail, which includes specially sized ornamentals that surround whimsical features taken from Snow White to Peter Rabbit.

For us the Dorrance Hamilton Fernery (more commonly known simply as The Fernery) was the highlight of the visit. Built in 1899 (and restored in 1993) it is believed to be modeled after the Ascog Fernery in Scotland. The floor is five feet below ground level and the whole is covered with a Victorian style wrought iron and glass roof. It is a magical place housing over 200 ferns dripping from walls, surrounding water features and creeping about in a tapestry of foliage. Most of the ferns are tropicals or sub tropicals although a specimen of *Dryopteris sieboldii* was the finest I've ever seen anywhere. (Reinforcing my belief that it thrives in heat!) I was quite taken by huge and healthy stands of assorted maidenhairs as well as lush selaginellas. *Selaginella erythropus* with its vivid red under-coating was a jewel especially brilliant in the company of dark green companions. The Fernery was a pleasant contrast to our many outdoor excursions and a fine finale for our Feast in the East.

With our touring completed, we returned to our Concordville Best Western for a final evening of camaraderie at a farewell banquet. Martin Rickard toasted our hard working organizers, Margaret and John Scott, offering enthusiastic thanks from the group for eleven days with an interesting, educational and varied itinerary and overall great time. We gave Margaret a bouquet and John a specially designed whiskey glass that commemorates the renowned BPS leader, the late Jimmy Dyce. Well deserved thanks to you both from all of us! See you in the summer of 2006!

Hardy Fern Foundation Spore Exchange List 2005

To Order: Please print your selections in alphabetical order. Include 50 cents for each fern requested, postage (Check made payable to Hardy Fern Foundation) and a self addressed bubble envelope (please do not attach the postage to the envelope). If you are ordering more than a half dozen packages, please send additional postage up to one dollar's worth. There are no additional charges applied to overseas members, but please enclose an international postage coupon (2 for large orders) and an envelope. Please list a first and second choice. Some items are limited, so order early for best selection. If both choices are unavailable, would you like to donate the additional money to the foundation, or hold it for another order? If neither is indicated, we will consider it a donation to our endowment fund. At this time orders are not taken from the internet, so please follow instructions above. Orders will be sent within a month of post mark date.

Your fresh spores are always appreciated!!! (Please package with collector's last name and year collected on package - individually packaged spore is much appreciated)

Mail requests to:

Katie Burki
HFF Spore Director
501 South 54th Street
Tacoma, WA 98408

Donors	From
Kevin Briegel	Ohio
Imre Burka	Hungary
Helen R. Choyke	Pennsylvania
Sylvia Duryee	Washington
Wolfram Gassner	Germany
Terry Hay	Alabama
Arlen Hill	Washington
Jocelyn Horder	Washington
Wilfried Limberger	Austria
Sue Mandeville	Oregon
Peggy McGill	Alabama
Sue Olsen	Washington
Rhododendron Species Foundation (RSF)	Washington
David Schwartz	California
Jeanie Taylor	Washington
Amy Schmidt	Wisconsin
Christian Wingard	Louisiana

Genus species	var. or cv.	Year	Donor(s)
Adiantum aleuticum	'Subpumilum'	'04	Duryee, RSF
Adiantum aleuticum	'Imbricatum'	'04	Olsen
Adiantum pedatum		'02	Briegel
Arachniodes aristata	'Okoze'	'05	Olsen
Arachniodes simplicior	'Variegata'	'00, '05	RSF, Hill
Arachniodes simplicior		'00	RSF
Asplenium adiantum-nigrum		'05	Limberger
Asplenium onopteris		'05	Limberger

<i>Asplenium platyneuron</i>	'03	Briegel
<i>Asplenium seelosii</i>	'05	Limberger
<i>Asplenium trichomanes</i>	'03, '05	Duryee, Burka
<i>Athyrium filix-femina</i>	'05	Burka, Schmidt, Briegel
<i>Athyrium niponicum</i>	'03, '05	Burka, Briegel
<i>Athyrium otophorum</i>	'01	RSF
<i>Athyrium pycnocarpon</i>	'02	Briegel
<i>Blechnum chilense</i>	'03-4	RSF
<i>Blechnum penna-marina</i> 'Cristata'	'03	Duryee
<i>Blechnum penna-marina</i>	'03	Duryee
<i>Blechnum spicant</i> 'Crispum'	'03	Olsen
<i>Blechnum spicant</i> 'Rickard's Serrate'	'03, '05	Duryee, RSF
<i>Blechnum wattsii</i>	'00	RSF
<i>Botrychium dissectum</i>	'05	Briegel, Schmidt
<i>Botrychium virginianum</i>	'02, '05	Briegel
<i>Cheilanthes intertexta</i>	'00	Schwartz
<i>Cheilanthes marantae</i>	'05	Limberger
<i>Cryptogramma acrostichoides</i>	'04, '05	Duryee, Hill
<i>Cyathea cooperi</i>	'05	Hill
<i>Cyrtomium falcatum</i>	'03, '04	Briegel, Wingard
<i>Cyrtomium fortunei</i>	'05	Burka
<i>Cyrtomium macrophyllum</i>	'01	RSF
<i>Cystopteris fragilis</i>	'03	Briegel
<i>Dennstaedtia punctilobula</i>	'03	Briegel
<i>Doodia australis</i> (syn. <i>media</i> ssp <i>australis</i>)	'04	RSF
<i>Doodia caudata</i>	'05	Limberger
<i>Dryopteris affinis</i> forms	'05	Horder
<i>Dryopteris arguta</i>	'03	Olsen
<i>Dryopteris bissetiana</i>	'03	RSF
<i>Dryopteris blanfordii</i>	'05	Olsen
<i>Dryopteris celsa</i>	'00, '03	RSF, Briegel
<i>Dryopteris championii</i>	'03	RSF
<i>Dryopteris corleyi</i>	'03	RSF
<i>Dryopteris crispifolia</i>	'05	Olsen
<i>Dryopteris cristata</i>	'03	Briegel
<i>Dryopteris cycadina</i>	'05	Hill
<i>Dryopteris cystolepidota</i>	'00, '03	RSF
<i>Dryopteris dilatata</i> 'Jimmy Dyce'	'99	Duryee
<i>Dryopteris erythrosora</i>	'00, '03	RSF, Hay
<i>Dryopteris erythrosora</i>	'04	Wingard
<i>Dryopteris expansa</i>	'03	Taylor
<i>Dryopteris filix-mas</i> 'Linearis Polydactyla'	'99, '00	Olsen, Briegel
<i>Dryopteris filix-mas</i>	'05	Burka
<i>Dryopteris formosana</i>	'03	RSF
<i>Dryopteris lepidopoda</i>	'03	RSF
<i>Dryopteris ludoviciana</i>	'02, '03	RSF, Hay
<i>Dryopteris marginalis</i>	'03	Hay, Briegel
<i>Dryopteris namegatae</i>	'05	RSF, Olsen
<i>Dryopteris pycnopteroides</i>	'03-4	RSF, Gassner
<i>Dryopteris ramosa</i>	'04	Gassner
<i>Dryopteris remota</i>	'00	RSF

continued on page 26

Spore Exchange List 2005 *continued from pg. 25*

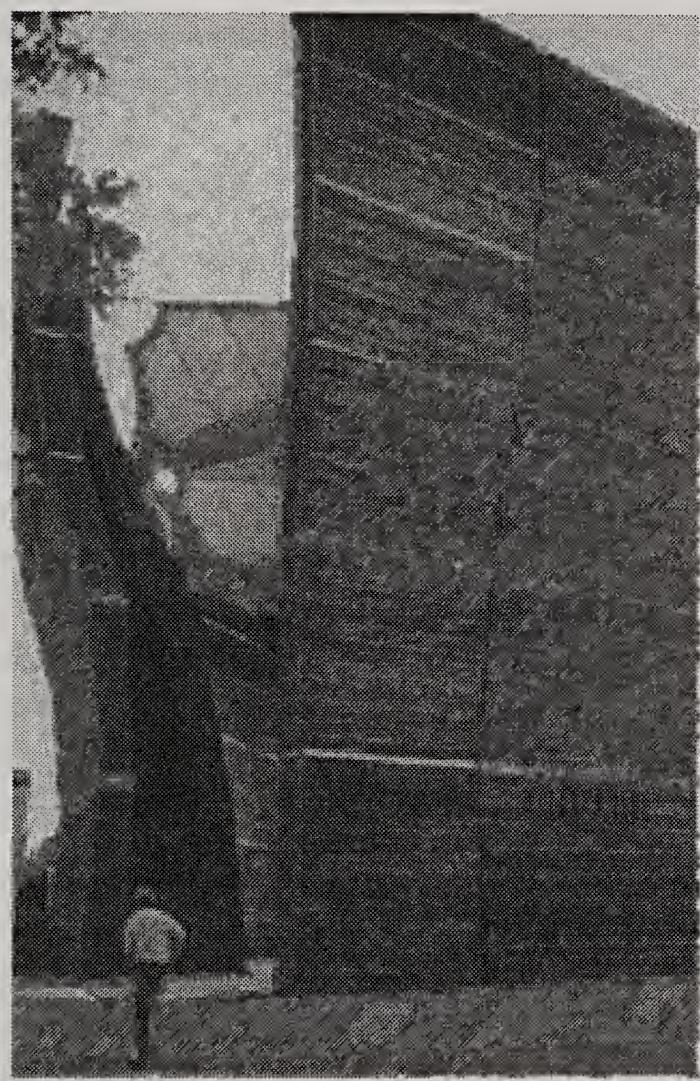
<i>Dryopteris sacrosancta</i>	'00	McGill
<i>Dryopteris scottii</i>	'03	RSF
<i>Dryopteris sieboldii</i>	'01, '05	Hill
<i>Dryopteris spinulosa</i>	'03	Briegel
<i>Dryopteris stenolepis</i>	'05	Olsen
<i>Dryopteris sublacera</i>	'05, '04	RSF, Gassner
<i>Dryopteris tokyoensis</i>	'03, '05	RSF
<i>Gymnocarpium oyamense</i>	'03	Duryee
<i>Llavea cordifolia</i>	'03	Schwartz
<i>Lygodium scandens</i>	'03	Briegel
<i>Matteuccia orientalis</i>	'05	Limberger
<i>Matteuccia struthiopteris</i>	'03	Briegel
<i>Nephrolepis exaltata</i>	'03	Briegel
<i>Onoclea sensibilis</i>	'03	Briegel
<i>Pellaea atropurpurea</i>	'05	Limberger
<i>Pellaea cordifolia</i>	'00	Schwartz
<i>Pellaea rotundifolia</i>	'05	Limberger
<i>Phyllitis scolopendrium</i> 'Digitata'	'01	Mandeville
<i>Phyllitis scolopendrium</i>	'01	RSF
<i>Polypodium australe</i>	'05	Limberger
<i>Polypodium glycyrrhiza</i>	'03	RSF
<i>Polypodium hirsutissimum</i>	'05	Limberger
<i>Polypodium polypodioides</i>	'03	Briegel
<i>Polypodium scouleri</i>	'01	RSF
<i>Polystichum acrostichoides</i>	'03	Briegel
<i>Polystichum aculeatum</i>	04, '05	RSF, Gassner
<i>Polystichum californicum</i>	'05	RSF
<i>Polystichum lobatum</i>	?	Gassner
<i>Polystichum luctuosum</i>	'03	RSF
<i>Polystichum makinoi</i>	'05	RSF
<i>Polystichum mayebarae</i>	'03, '05	Olsen
<i>Polystichum microchlamys</i>	'05	Limberger
<i>Polystichum munitum</i>	'01	Taylor
<i>Polystichum retrosopaleaceum</i>	'04	Gassner
<i>Polystichum setiferum</i> 'Pulcherrimum'	'03	Duryee
<i>Polystichum setiferum</i>	'00	RSF
<i>Polystichum setigerum</i>	'00	Duryee
<i>Polystichum</i> sp. (like a fine braunii)	'04	Gassner
<i>Polystichum tsus-simense</i>	'03, '05	Duryee, Hill
<i>Polystichum xiphophyllum</i>	'04, '05	RSF, Duryee
<i>Pteridium aquilinum</i>	'03	Briegel
<i>Pteris vittata</i>	'03	Briegel
<i>Thelypteris (Phegopteris) hexagonoptera</i>	'03	Briegel
<i>Thelypteris noveboracensis</i>	'03	Briegel
<i>Thelypteris palustris</i>	'03	Briegel
<i>Thelypteris patens</i>	'03	Briegel
<i>Woodsia intermedia</i>	'05	RSF
<i>Woodwardia areolata</i>	'03	Briegel
<i>Woodwardia fimbriata</i>	'02	Mandeville
<i>Woodwardia virginica</i>	'03, '05	Briegel

Discovering the Ferns of Deutschland *continued from page 5*

gardeners standing in a meadow with our butts in the air and heads to the ground looking for these tiny plants amongst the grass. We were able to find *Diphasiastrum alpinum*, *D. complanatum*, *D. x issleri*, and possibly *D. tristachyum*. We returned satisfied to Wernigerode and were able to take in a few sites at this medieval styled city.

The Stobbe garden was our next stop. Mr. Stobbe showed us a beautiful specimen of a sterile *Asplenium scolopendrium* ‘Crispum’ with its perfectly undulating edges and clean bright green blade. Mr. and Mrs. Stobbe were trained gardeners and grew their ferns at a nearby plot of land originally used for cut flower production. Their large collection had many specimens grown in containers for use in exhibitions. One of the highlights was an

extremely dwarf form of *Onoclea sensibilis*, only reaching a few inches tall! After the tour Mr. Stobbe lead us to our hotel near the outskirts of World EXPO 2000. This once grand space is now left mostly abandoned with minimal care.



World Expo 2000.
Photo by Richie Steffen.

We traveled north and were able to visit three wonderful smaller gardens along the way. The Carstensen garden used its limited space in an effective way with all but a small lawn area given to a great collection of ferns. His rock garden was very impressive for its ingenuity. Layers of plastic had been spread through the rocks and soil to create three layers of seeping water for growing some difficult ferns. Other areas had spectacular examples of *Pellaea*, *Cheilanthes*, and some beautiful *Lygodium palmatum*. Our second garden was that of Mr. Schmick, author of *Farne in Natur und Garten*. The long narrow property had a running stream through it emptying into a spring at the bottom of the garden creating a pleasing vignette. Near the clear pool of water was an impressive

and large specimen of *Osmunda regalis* ‘Gracillima.’ Along the side of the garden was a small greenhouse that featured a wide range of tender plants. Our final destination for the day was the garden of Mr. and Mrs. Nittritz, one of the smallest gardens we visited, but still having an impressive collection of ferns. They had recently become interested in plants of New Zealand and in hardy cyclamen. There were several very nice specimens of *Cyclamen hederifolium* in bloom including a few plants that had rich ruby pink flowers. We returned to the road and headed for our most northerly destination, Schleswig, and the amazing garden of Dr. Berndt Peters.

continued on page 28

Discovering the Ferns of Deutschland *continued from page 27*



Cheilanthes eatonii. Photo by Richie Steffen.

Dr. Peters graciously toured us around the historic town of Schleswig. The old fishing village area was very charming and I found the tour of the oldest Lutheran cathedral in Germany interesting having attended many sermons in much more modest Lutheran settings in Pennsylvania as a young boy.

Dr. Peter's garden was surprisingly large and each time we turned a corner it seemed a whole new area would appear. There were several taxonomic beds containing a plethora of species and cultivars. Several beds were covered with lath structures to help create the best growing environment. He had formed a good *Polypodium* collection with several excellent forms. It was interesting to see several different selections of *Polypodium glycyrrhiza* while knowing that virtually none of these forms are known in the Pacific Northwest, where it is native. The well-landscaped garden contained dry beds, ponds, rock gardens and much more, each feature being well-designed and thoughtfully planted. There were several unique and very rare specimens including a mature plant of *Osmunda regalis* 'Decomposita', an unusual tripinnate form of the species and some unusually large specimens of *Polystichum polyblepharum*, reaching almost twice their typical height. It was nearly dark by the time we were done and left for the hotel.

The final garden we visited on our whirlwind tour was Mr. Wolfram Gassner's garden. Mr. Gassner is a landscaper with a passion for plants, especially ferns. It seemed like little would stop him from creating a garden setting that would make a prized plant grow well. One of the most impressive features was a large area that was completely surrounded by a moat to protect delicate specimens from the ravages of slugs! The house and garden were set along side a busy road and to help reduce the noise Mr. Gassner constructed a ten foot high berm of soil and completely planted it with unusual trees and shrubs to make shade for a wide variety of ferns. There were several very well done rock gardens with crevices containing *Pellaea*, *Cheilanthes*, *Ceterach* and much more. I was drawn to a small stumpery in the garden and I must say it has inspired me to add one to my garden. After a full day at this beautiful garden we retired to a hotel in Hamburg and prepared for our return flights.

I will long remember this trip and all of its wonderful sites. I know the participants on the 2006 BPS/HFF trip to Germany will enjoy it as much as I did.

THE HARDY FERN FOUNDATION BOARD OF DIRECTORS

President: John van den Meerendonk

President Elect: Richie Steffen

Immediate Past President: Pat Kennar

Recording Secretary: Katie Burki

Corresponding Secretary: Sylvia Duryee

Treasurer: Lyman Black

Board Members:

Michelle Bundy

Sue Olsen

Becky Reimer

Meredith Smith

Nils Sundquist

Jeanie Taylor

Bors Vesterby

Members at Large:

Greg Becker

Naud Burnett

Joan Gottlieb

John Scott

Mary Ellen Tonsing

*Inside Layout & Design by Karie Hess
Webmaster - Bors Vesterby*

